

SF629

CITY CORONERS COURT

44-46 PARRAMATTA ROAD, GLEBE

BEFORE: B. J. WILSON, ESQUIRE, CORONER.

INQUEST TOUCHING THE DEATH OF THOMAS ANTHONY BIELECKE,
KEITH CAMPBELL,
GREGORY JOHN MOON.

INQUIRY INTO A FIRE AT ROYAL NATIONAL PARK, GRAYS POINT.

FINDINGS:

CORONER:

Between the 9th and 11th January, 1983, a bush fire occurred in the Royal National Park which burnt 337 hectares of park land before it was extinguished. During the afternoon of 9th January whilst fighting the fire some volunteer bush fire fighters of the Heathcote Bush Fire Brigade were overwhelmed by flames. Keith Campbell, Thomas Anthony Bielecke and Gregory John Moon died and six other members were severely burnt.

Inquests concerning the deaths of these persons were jointly held with an inquiry concerning the fire. The hearing, which lasted 255 days, involved many contentious issues. The deaths of five volunteer bush fire fighters on 3rd November, 1980 whilst also fighting a bush fire within the Royal National Park had a great bearing upon the Police investigation into the events of 9th January, 1983 and clearly increased the determination of the parties to have a full examination of the role of the various authorities in fighting fires in the area.

A large number of persons and organisations were represented at the hearing. They were:

The relatives of the late Keith Campbell,
The relatives of the late Gregory John Moon,
The relatives of the late Thomas Anthony Bielecke,
Robert Bruce Sawyer, an injured person,
Sharon Ann Campbell, an injured person,
Craig William Goodall, an injured person,
Paul Christopher Fenn, an injured person,
James Leslie Fowler, an injured person,
Craig Anthony Blanche, an injured person,
The Bush Fire Council of New South Wales,

(The Bush Fires Act, 1949 (as amended) provides that the Bush Fire Council shall consist of a Chairman and representatives of the following organisations: -

Forestry Commission,
National Parks and Wildlife Service,
Board of Fire Commissioners of N. S. W.,
Shires Association of N. S. W.,
Insurance Council of Australia,
Western Lands Commission,
Department of Services,
Police Department,

Town Clerks Society of N. S. W.,
and other persons of whom not less than five shall be persons who are members of bush fire brigades).

The Co-Ordinating Committee of the Bush Fire Council of N. S. W.,
(The Bush Fires Act, 1949 (as amended) provides that this Committee shall consist of the Chairman of the Bush Fire Council and representatives of: -

Forestry Commission,
National Parks and Wildlife Service,
Board of Fire Commissioners of N. S. W.,
Shires Association of N. S. W.)

The Board of Fire Commissioners of N. S. W.,
(The Fire Brigades Act, 1909, provides that members of
the Board include persons elected from local government
councils, insurance companies, and volunteer and permanent
members of fire brigades.

The Board maintains the N. S. W. Fire Brigades).
The Sutherland Shire Council,
Brian Arthur Parry, Fire Control Officer of the Sutherland Shire
Council,
The National Parks and Wildlife Service,
Kenneth Robert Ayers, Superintendent,
Jennifer Ann Farrell, Senior Ranger.

The Royal National Park (hereinafter referred to as the RNP)
is located on the southern outskirts of Sydney and comprises
15 024 hectares of coastal bush land. It is a very popular area,
attracting many thousands of visitors, especially on holidays and
at weekends. The RNP is occupied and managed by the New South
Wales National Parks and Wildlife Service (hereinafter referred
to as the Service).

The RNP adjoins residential areas of the Shire of
Sutherland, whose residents have long been aware of the serious
threat of bush fires within the park. Consequently the
Sutherland Shire Council has a large and active volunteer bush
fire brigade organisation with Bush Fire Brigades established at
various suburbs throughout the Shire. The brigades are organised
into various zones: - The Northern Zone - Grays Point, Engadine,
Loftus and Kurnell; the Southern Zone - Heathcote, Bundeena,
Maianbar and Waterfall; and the Western Zone - Illawong, Sandy
Point, Menai and Woronora. There is also a Headquarters Brigade.
A Group Captain and Deputy Group Captain(s) are appointed in
respect of each zone and each Brigade, governed by its own
constitution, has a President, a Captain, a Secretary and other
officers. A modern and well equipped Fire Control Centre has been
erected by the Sutherland Shire Council at Heathcote on land
provided by the Service. A Fire Control Officer has been
appointed (in accordance with Section 26, Bush Fires Act, 1909)
by the Sutherland Shire Council and has the supervision and
direction of all bush fire brigades within the organisation and
of the captains, deputy captains, group captains or deputy group
captains of such brigades.

As the summer of 1982-83 approached, most of N. S. W. was
affected by the prolonged drought which had existed for more than
four years. Coastal areas were particularly affected and tinder
dry conditions existed in many forested areas. The Bush Fires
Act, 1949, provides that there shall be a bush fire danger period

for the whole of the State from 1st October in each year until the 31st March in the next ensuing year and it enables local government councils to extend that period. In 1982 the Sutherland Shire Council had commenced the bush fire danger period a month earlier than the statutory period because of the continuing drought conditions.

The 9th January, 1983 was at the height of summer. The weather forecast issued at 8 p.m. the previous day was:

"For the Metropolitan area, dry, warm to hot north-westerly winds turning southerly during the morning, fresh on the coast, moderate seas and a low swell, very high fire danger. The forecast temperature ranges for the City area 24 to 33 and for Liverpool 23 to 36 degrees."

The forecast issued at 5 a.m. on 9th January included the following:-

"A fire weather warning for the Metropolitan District and Illawarra, Southern and Central Tablelands, South West Slopes and Hunter Districts where the fire danger is very high to extreme. The Minister for Emergency Services has banned the lighting of fires. A strong wind warning for coastal waters. A gale warning for ocean waters south of 33 degrees south. For the Metropolitan area, a hot day with fresh to strong north-west to south-west winds, rough seas off-shore on a low swell, mainly sunny. The maximum temperatures City 42, Liverpool 44, the Metropolitan precis - hot windy."

A further forecast was issued at 8.30 a.m.:-

"Fire weather warnings for the Metropolitan, Illawarra, Southern and Central Tablelands, South West Slopes and Hunter Districts for very high to extreme fire danger. The N.S.W. Minister for Services has banned the lighting of fires in those districts. A strong wind warning for N.S.W. coastal waters, a gale warning for the Tasman sea. The Metropolitan area forecast: Hot with north westerly winds, fresh to strong at times, a chance of an isolated thunderstorm, winds tending west to south west and slightly cooler this afternoon, seas moderate to rough offshore, low swell. The temperatures forecast: City 42, Liverpool 44. Precip - hot, slightly cooler, west to south west winds later today."

The forecasts were accurate. The day had all the portents for fire.

Mr. Brian Parry (herein referred to as the FCO) was appointed the Fire Control Officer of the Sutherland Shire Council in 1976. He was thoroughly conversant in the management of bush fire brigades, bush fire fighting procedures and the use and maintenance of bush fire fighting equipment.

At 0600 hours on 9th January, 1983 the FCO received advice from the Alexandria Control Centre of the New South Wales Fire Brigades (hereinafter referred to as NSWFB) that a Total Fire Ban had been declared from 0900 hours that day and that a bush fire alert would apply from 0800 hours. The FCO advised the most senior officer present at the Royal National Park of the Total Fire Ban and then communicated with the various Group Officers of the Sutherland Shire Bush Fire Brigades.

At 0916 hours on 9th January, 1983 the Alexandria Control Centre received a message (apparently from a member of the public) of a smoke sighting or fire within the RNP in a location known as the Temptation Creek area. The Alexandria Control Centre passed on the message to the FCO who by this time was at the Fire Control Centre at Heathcote. The FCO notified the senior officer of the Service at the RNP.

On 9th January, 1983 the Superintendent of the RNP was in Adelaide, South Australia, on leave. The most senior officer of the Service at the RNP was Miss Jennifer Ann Farrell, who had recently been promoted from a position of Ranger to that of Senior Ranger Resources. Owing to the absence on leave of the Superintendent, Miss Farrell had been made the Acting Chief Ranger. Questions relating to the Superintendent being on leave and the uncertainty of Miss Farrell of fire fighting procedures were of importance during the hearing.

Mr. Dennis Preston, a bush fire fighter of fifteen years experience, was the Group Captain of the Northern Zone in which the Temptation Creek area of the RNP is situated. Group North, as Mr. Preston was referred to, received a radio message at 0918 hours advising him of the fire and although he arrived at the scene of the fire within a few minutes, the Loftus Bush Fire Brigade was already in attendance. Shortly afterwards Miss Farrell arrived.

At that stage the fire could not be easily reached as it was off a trail known as the Serpentine Trail, which runs from the Sutherland By-pass road in a southerly direction until it joins a trail known as the Temptation Creek Trail. That trail then crosses the Temptation Creek and runs to the east and joins the Angle Road Trail near Angle Road, Grays Point.

Records maintained by the Service state that the cause of most of the fires within the RNP is either unknown or arson. Fires of unknown cause are also believed to be mainly of human agency. Fires are often attributed to arson when there is a discernable pattern or when they commence adjacent to trails. There had been ten small fires in the Temptation Creek area during the months of September and December, 1982 and January, 1983. However there is no evidence before me as to the actual cause of the ignition of this fire.

Following a discussion between Group North and Miss Farrell the volunteer fire fighters put in a back burn near the intersection of the Serpentine and Temptation Creek trails. Weather conditions were too severe for an effective and safe back burn yet it was a reasonably successful operation and held the fire to a defined area until it escaped at the eastern end of the back burn. The fire had escaped into, or adjacent to, an area which had not been burnt since 1971. The bush fire progressed rapidly and with great intensity in bush land carrying high fuel loads. The question of hazard reduction to reduce the fuel loads and thereby reduce the rate of spread and intensity of a bush fire was one of importance and occupied a considerable amount of hearing time. I will return to this later.

The RNP is located within the County of Cumberland which has a major fire plan known as the County of Cumberland Emergency Bush Fire Plan devised to co-ordinate fire fighting in the event of bush fires within the County. Local government councils and Government authorities, which include the Sutherland Shire Council and the Service, participate in the plan which embraces the concept of co-operative fire fighting. An important element of the plan is the classification of bush fires into stages, which are:-

Stage 1 Bush Fire - A fire where outside assistance is not required and local action is being taken.

Stage 2 Bush Fire - A potentially major fire where limited outside assistance is required and local assistance is being organised.

Stage 3 Bush Fire - A major fire beyond control by the local fire fighting resources where substantial assistance is urgently required.

When bush fires are incapable of control by local fire fighting authorities the Bush Fires Act, 1949, by virtue of Section 41F, provides that the Chief Co-Ordinator of Bush Fire Fighting or his delegate may assume control of all organisations connected with the suppression of a bush fire. This did not occur with this fire, although the FCO had notified the Alexandria Control Centre at 0939 hours that the fire was of Stage 2 classification and at 1048 hours that it was Stage 3.

After Miss Farrell had attended the fire she spoke directly to Group North and by radio to the FCO. At 0946 hours she requested that the RNP units attend the bush fire. Unit 507 (of the Service), a Toyota Landcruiser with a small 100 gallon slip-on water tank, with a crew of two rangers went to the Sutherland By-pass near the scene of the fire. The Service also had an International four wheel drive truck on which could be fitted a 500 gallon water tank. Known as Unit 508 it was a general maintenance vehicle and that morning had been collecting garbage and did not leave the RNP depot for the fire until approximately 1009 hours.

On the morning of 9th January, 1983 ten members of the Service were available for fire fighting duties. By 1630 hours there were twelve persons, and a relief crew from Sydney arrived by 2200 hours. The Sutherland Shire Council bush fire brigade organisation had approximately 283 volunteer bush fire fighters and forty one vehicles in the field on the day.

The fire spread quickly under the influence of the prevailing north-westerly winds towards the residences and the school at Grays Point which are located on the boundaries of the RNP. The FCO left Mr. Alan Hemmett in charge of the Fire Control Centre and travelled to Grays Point. Mr. Hemmett, a senior officer of the brigades, was the Group Captain of the Southern Zone.

At Grays Point the FCO met up with Miss Farrell who was extremely apprehensive about her position as the senior officer of the Service present at the fire. She had never been in such a situation before and, wanting to clarify her position, she asked the FCO, "Who is in charge of the fire?". The FCO replied, "I guess I am". Miss Farrell then effectively relinquished control of the fire to the FCO.

The FCO decided to make an aerial reconnaissance of the fire ground from Grays Point but the Service helicopter was unavailable as it was at a large bush fire which was burning near Bundanoon, the Morton National Park and Kangaroo Valley. Service officers sought the assistance of a television channel helicopter but in the meantime the FCO obtained the use of the N.S.W. Police Force helicopter Polair, and made his first flight between approximately 1212 and 1225 hours. Following that reconnaissance

he led a small group of three bush fire brigade tankers into the RNP from Grays Point. The vehicles went along the Angle Road Trail and the Temptation Creek Trail to a point near Temptation Creek where the FCO discovered that the fire had spotted over that creek and was rapidly moving up a hill towards his tankers. He hurriedly moved everyone back to Grays Point. The evidence about that excursion became important, as it provided an interesting comparison with the later exercise in which the three fire fighters died. There were many significant features, particularly the fact that a fire can advance and change in intensity in a very short space of time and that a ground reconnaissance can alert a crew leader to danger before fire fighting operations actually commence.

Fanned by the north-west winds the fire continued its rapid progress in the tinder dry conditions of the RNP and advanced towards Grays Point where a considerable number of bush fire fighters and firemen of the NSWFB took up positions to protect the school and houses at the southern end of Angle Road. In response to the Stage 3 classification of the bush fire a senior District Officer of the NSWFB attended at Grays Point to supervise the deployment of the NSWFB appliances and to liaise with other authorities, particularly the FCO. Seven NSWFB appliances attended during the day and a further two appliances attended in the evening.

At approximately 1315 hours the fire struck. After a major fire fighting effort, hampered so far as the NSWFB were concerned because of low water pressure in the mains, the school, which was directly in front of the fire, was saved. The fire slowed on the steep slopes leading down to the Hacking River, but continued to threaten houses in Moyran Parade, Moyana Avenue and Warren Avenue. The combined fire fighting efforts of the professional firemen and the volunteer fire fighters prevented any property damage at Grays Point. The Service units were not present as Miss Farrell had requested them to return to the Service building known as the Visitors Centre on the other side of the fire.

By approximately 1400 hours the immediate threat to Grays Point had subsided and the FCO decided to make a second reconnaissance flight in Polair. His evidence was that during the flight he observed that the eastern and north eastern flank of the fire was burning slowly against the influence of a north-easterly wind with a minimal flame height. Other officers also claimed that the wind came from the north-east during the afternoon. This evidence of a change in the wind from the prevailing north-west winds to a north-east wind came under strong attack during the hearing and it was submitted that it was a deliberate attempt by the FCO and other officers to give a false credibility to the later exercise which resulted in the deaths.

The FCO said that during his reconnaissance he had observed that the eastern edge of the fire running north from the ovals adjacent to the school had been extinguished to the Temptation Creek Trail. However, he was concerned with the edge to the north of that trail because of the forecast for a south-westerly change to the wind during the afternoon. In that event the wind would progressively move anti-clockwise through the north, north-west and west sectors before the south-west winds eventuated and the FCO held the opinion that if that occurred, fire could be blown across the Temptation Creek Trail forward of the extinguished area and ignite areas to the south-west of the area known as Anana Hill, which is a raised plateau at the eastern end of the Temptation Creek Trail north of the school and ovals. According to the FCO the westerly and south-westerly winds could drive the fire around the southern side of Anana Hill and then along the eastern side, threatening the residences in North West Arm Road, Grays Point. Based on those considerations the FCO formulated a plan to mount an operation to the north of the Temptation Creek Trail in the vicinity of Anana Hill. The very existence of such a plan and its validity came under prolonged attack from the legal representatives of parties in the hearing.

At 1436 hours the FCO landed at the Grays Point oval. In a recorded interview with Police officers on 20th January, 1983 the FCO stated that he had briefed a Mr. John Wood directly to undertake the planned operation. On six occasions in his answers to questions by the Police officers he referred to having had the briefing with Mr. Wood.

Mr. John Wood, the Captain of the Illawong Bush Fire Brigade, had recently been elected as the Deputy Group Captain of the Western Zone. He had been an active member of Illawong Bush Fire Brigade for seventeen years and had been a Deputy Captain for twelve months and a Captain since 1979. With an Illawong crew Mr. Wood had taken part in the fire fighting that morning protecting the school and houses at Grays Point.

Police officers conducting the investigation into the deaths of the fire fighters interviewed Mr. Wood on 13th January, 1983 and he told them that he had been directed by radio to go with three other tankers to the northern end of Angle Road. Following their interview with the FCO on 20th January, 1983, the Police officers again interviewed Mr. Wood and put to him that the FCO had personally briefed him to conduct the exercise. He became, he said, distressed and felt under duress because of the Police assertions, which he thought were lies.

As a result of this he attended a conference on the next day between officers of the Sutherland Shire Council and legal representatives of the Council. Confusion arose during the hearing as to whether the legal representatives of the Council were his own legal advisers and objections were made to some questions asked of him on the grounds of legal professional privilege.

In evidence before me the FCO said that he had made a mistake when he had told Police that it was Mr. Wood and the true facts were that he had briefed Group North. He became aware of his mistake when he had received a copy of his Record of Interview much later. Because it was raining when he had alighted from the helicopter he took shelter in Group North's vehicle where he briefed him about the fire and told him to get Mr. John Wood to take some units up onto the Temptation Creek Trail near Anana Hill and work north to extinguish the fire.

Parties questioned at length whether the FCO had in fact briefed Mr. Wood or Group North and the nature and extent of any such briefing.

The fact that Mr. Wood received his instructions only by radio from Group North is confirmed by the master radio tape held at the Fire Control Centre. No direct corroboration in this form exists to support the FCO's evidence that he briefed Group North and it was submitted during the hearing that there was evidence to the contrary in the form of the following radio communications between Group North and a Mr. Don Carter, Captain of the Menai 82 tanker which was then located between the ovals and the Temptation Creek Trail: -

(* = the Base operator at the Fire Control Centre, Heathcote).

D. Carter: Base from Menai 82 over.

* Menai 82

D. Carter: Base we're working on this north edge of the oval in conjunction with Kurnell. We are nearly to the top but it needs a vehicle to come in on the top trail, they should be able to handle it over.

* Okay, Don, would you go car to car with Group North please over.

D. Carter: Roger wilco Group North from Menai 82 over.

Gp North: Group North over.

D. Carter: Dennis did you hear my comments to Base over.

Gp North: I copied part of it Don you want another tanker up there over.

D. Carter: Negative we are located near Kurnell and are working together we are working up the hill, we have got it contained 2/3 of the way up, we need a tanker to come in up from the top end, the top end of Angle Street in on that trail you may already have someone there, but I can't see from this location over.

Gp North: Not at this stage Don, I will just have a word with Brian (FCO) and we'll organise someone to go up there, but it seems to have died down a fair bit now over.

D. Carter: Roger the winds changed a bit you will probably need two tankers up there you should be able to contain this edge over.

Gp North: Roger I think we've got a couple that are starting to get to the end of their tasks, I'll call you the moment I've spoken with Brian clear.

D. Carter: Roger clear.

* 1436 VL2RP clear.

On the whole of the evidence I am satisfied that upon landing the FCO did take shelter from the rain in Group North's vehicle where he briefed him on the fire ground and told him to get Mr. Wood to take some units up onto the Temptation Creek Trail near Anana Hill to fight the fire.

After that briefing concluded, the FCO left Grays Point at 1444 hours and returned to the Fire Control Centre. Group North said that he then carried out a reconnaissance along the Temptation Creek Trail to near the fire edge.

Parties questioned whether this reconnaissance in fact took place.

At about 1505 hours, Group North met Mr. Wood and told him that he had a task for him when he (Wood) had finished his current work near the school. He did not tell him the nature of the task.

At 1509 the following radio conversations occurred: -

Sandy Point: Sandy Point 82 to Base

* Sandy Point 82 over.

Sandy Point: You wouldn't have a task for us would you over.

* Your location over.

Sandy Point: At the school over.

* Roger standby Group North over.

Gp North: Roger John (i.e. John Hoepper, the Base operator), it depends on when Brian gets back to the Centre so that I can plot this thing on the map up there, I was just looking at the situation on the northern side of the Temptation Creek trail, Menai has worked up from the oval to that trail, but we've got an active edge working its way down into the Temptation Creek area over.

* Yes Roger, FCO at this location. The plotting is being done now, we will get back to you shortly over.

Gp North: Roger, when I can find the extent of that line. I think we'll be able to use a few tankers on that, over.

* Copy clear.

Gp North: Group North clear.

These messages tend to confirm that Group North had undertaken a reconnaissance.

Between 1515 and 1525 hours the FCO conducted a briefing of senior personnel at the Fire Control Centre. Mr. Hemmett, the OIC of the Fire Control Centre was present with Miss Farrell. Mr. Len Carter, Group Captain of the Western Zone, was present for at least part of it. Following the briefing there was a radio conversation between Mr. Hemmett and Group North who was still at Grays Point.

Hemmett: Dennis I'm looking at the plot and the weather at the moment, Brian feels that we must wrap up that fire between Moyran and the River as soon as possible. For your information we are going to get machinery in, wheeled tractor machinery in on the eastern flank coming in from the Sutherland end over.

Gp North: Roger I copy over.

Hemmett: Right Den the wind seems to be in from this location picking up from the westerly direction. I don't know

exactly how that is affecting you. What would you estimate the winds down there to be over.

Gp North: A little bit difficult to tell I'm right behind the hill at the moment over.

Hemmett: Yes, right mate well the thing is to try and get as many units as you can to wrap up that eastern flank of the fire particularly around the Moyran Parade area and then work your way back behind the school towards the western side of the fire line.

Gp North: Roger then I'm just on the fire trail.....

At that stage Woronora tried to contact Base.

Wor 94: VL2RP from Woronora 94

Hemmett: Dennis you are completely blocked out by background noises I suggest you go to a better location, if you are copying us we will advise you the minute the wheel tractor is in the area clear.

Gp North: Roger I'm on the Loftus 81 now and was just trying to work from the portable but at this stage we have got about 6 or 7 tankers sitting around there with no task over.

Wor 94: VL2RP from Woronora 94.

Base: Woronora 94 stand by.

Hemmett: Right Den if you've got all them tankers there, could you establish a hose line down to meet up with the river crew over.

Gp North: Negative I've got quite a few tankers on the river, Maianbar, Loftus, Engadine, and Waterfall establishing a line to the river. All the other tankers are around with John Wood at Grays Point School over.

Hemmett: Right well as you get them available I suggest that you move them along the eastern flank back towards behind the school and so on right through.

Gp North: Roger Alan yes that was the plan we've mopped up all the way up to Temptation Creek [Trail] from Grays Point Oval and then all the way back around Moyran Parade so if when John Woods available if he can take the tankers he needs there and go up on to Temptation Creek trail and start working in a northerly direction on the fire line over.

Hemmett: Right Den, now the thing to bear in mind if we get a big shift in wind the western flank will take off in the direction of the Visitors Centre, over.

Gp North: Roger Alan I don't know what is happening on that side over.

Hemmett: It is slowly burning back in a complete line, the whole line is activated and from when Brian flew it - the spot fire that fell down near the river has now got a fire line between the river and the road Florence Parade over.

Gp North: Roger Alan it will probably be best at this stage if we can leave these four brigades working this line to the river. I think that will be sufficient if a couple of those tankers can go up and start working off Temptation Creek and the rest will be available for that other side over.

Hemmett: Roger Den probably you ought to back Grays Point up with one unit that's where the wheeled tractor will start to make access for you from that end over.

Gp North: Roger they have got Loftus 72 one more tanker there over.

Hemmett: Right okay then Den well keep us posted of your needs, if you want anything tell us clear.

Gp North: Okay then Group North clear.

The time was then 1532.

Those messages were carefully studied during the hearing and a great deal of evidence was taken concerning their meaning. Submissions were made concerning many features, including the fact that the FCO had completed the plot of the fire; that the FCO made special mention of the fire underneath Moyran Parade; that a tractor was to come in from the Sutherland end; that at the Fire Control Centre the wind was picking up from the west, yet Group North found it difficult to assess the wind because he was sheltered by the hill; the confused version that Mr. Hemmett gave of the fire; the task which would take John Wood onto Anana Hill surfaced on the radio for the first time; and there was no mention of the FCO being involved in the planning.

The Group Captain of the Western Zone, Mr. Len Carter, has been a member of the Sutherland Bush Fire Brigade organisation for forty years. He has made a real effort to educate himself about bush fire fighting and has attended a number of short fire fighting courses in the United States of America. After the briefing conducted by the FCO at the Fire Control Centre Mr. Carter volunteered to go and assist Group North and he then left for Grays Point. On the way there he inquired on the radio at 1532 the exact location of Group North, but before he reached Group North's location there were the following radio conversations at 1537 hours: -

Wood: Base Illawong 81

* Illawong 81 over.

Wood: Could you contact Group North - tell him that the work that we are engaged in is now complete and could he rendezvous with me at Angle Road over.

* Copy clear with you Group North over.

Gp North: Group North.

* Message for Group North from John Wood, he would like to meet Group North in Angle Road over.

Gp North: Roger John just checking on this hose line going down to the river making sure that it is getting down there quickly and once I meet Lenny I will come around over.

Wood: Copied Dennis I'm down near the oval at Angle Road over.

Gp North: Roger John (Wood) if I don't get around there for a little while the plan is to get up onto that Temptation Creek Trail. Donny Carter will be able to point you in the right direction. The fire line heads up over the hill then in a northerly direction over.

Wood: Then the idea is to chase that edge is it over.

Gp North: Affirmative over.

Wood: Copied that what units have I got over.

Gp North: I think you have about 1/2 dozen up there sitting around you over.

Sandy Pt: Sandy Point's available.

Wood: Copied Sandy Point Group North I've got Sandy Point

anyway I think there is probably a Heathcote vehicle also over.

Gp North: That's affirmative I think HQ83 is there Heathcote 81, Bundeena 81. There should be quite a few to pick from over.

Wood: Can I use all of them over.

Gp North: I think that might end up with a traffic jam probably 2 or 3 at this stage until we see what we are doing on the other side of the fire over..

Wood: I copied that I will get something going clear.

Gp North: Group North clear.

These messages and the events concerning them were also the subject of a great amount of evidence and analysis. Points that I consider to be particularly relevant are that Mr. Wood requested a meeting with Group North but received his instructions by radio; this was the first and only time that the task was discussed with Mr. Wood; Mr. Wood was aware that the task was to "chase the edge"; there were in fact about six brigade units standing by available for work; at 1436 hours Don Carter had sent a message about a task on the same fire line from the oval to the trail and had mentioned one tanker or probably two tankers would be required; at 1532 hours Group North had mentioned a "couple" of tankers when talking to Mr. Hemmett and at the time of the most recent messages at 1537 hours Group North warned of a traffic jam and said, "probably two or three at this stage"; it was one hour since the FCO had landed from his second flight; and Group North was in a position where he could not determine the direction of the wind but had been told by Mr. Hemmett that it was picking up from the west.

Various other radio messages were then made and by 1549 hours bush fire brigade tankers known as Sandy Point 82, Menai 81 and Heathcote 81 were collected to take part with Illawong 81 in the exercise under John Wood's direction.

At about the time that the tankers were proceeding to Anana Hill a meeting occurred between Group North and Group West and they decided to section the fire. Group West took control of the Grays Point section and Group North left to check the position near the Sutherland By-pass.

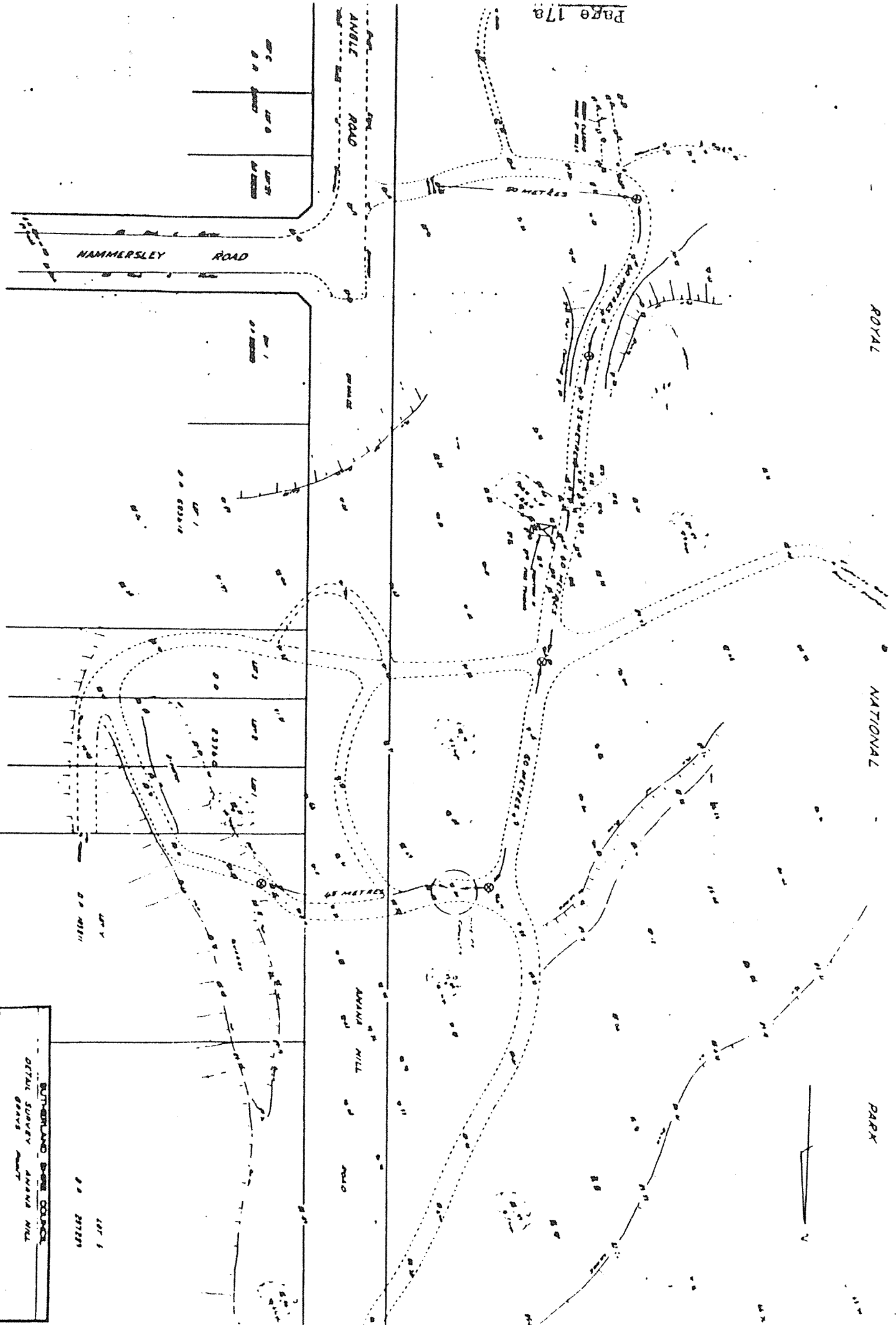
The four tankers went along Angle Road past the ovals and turned into the RNP onto the Angle Road Trail which runs generally north through the park joining the northern end of Angle Road with the southern end of Greenhaven Road. After leaving Angle Road the trail takes a sharp bend and rises quickly

in a series of steep grades onto an area called Anana Hill, which is in the nature of a plateau. At the top of the last steep pinch there is an intersection where Temptation Creek Trail runs off to the west and on the east is the southern end of a short trail which forms a loop and rejoins the Angle Road Trail sixty metres from the said intersection as shown in Exhibit 17, copied herein. (There is no road or track where the words "Unmade Road" appear).

ROYAL

NATIONAL

PARK



SUTHERLAND DISTRICT COUNCIL
DETAILED SURVEY ANAKA MLL
ANAKA MLL
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
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Three tankers moved up to the intersection. (This in effect prevented Heathcote 81, which was the last tanker, from reaching the intersection and it stopped just short of it). The fire that Mr. Wood had been sent up to chase was discovered ninety metres west of the intersection. There was also fire burning to the south-west of the intersection. The only really safe area from which to fight the fire at that time was the burnt out area to the west of the fire edge. However Mr. Wood decided to fight the edge by leaving three tankers at the intersection and running hoses along the Temptation Creek Trail.

Although Mr. Wood maintained in his evidence that the wind was then blowing from the north-east, there was a large amount of evidence that the wind was blowing from the north-west sector at that time which I accept to be the true position. The tankers were in a very dangerous position.

At Mr. Wood's direction the crew of Heathcote 81 immediately began to fight the south western fire. There was thick undergrowth on both sides of the trail. Shortly afterwards spot fires commenced behind them east of the trail and Heathcote members, including some who had been on the western side, went to fight those fires.

It was 1555 hours.

The three tankers at the top of the hill were manoeuvred into position to enable them to be quickly moved off the hill. As Heathcote 81 was now blocking the trail for them, it was requested that it be reversed into a small clearing on the eastern side of the trail. The intersection where the three trucks were stationed is 165 metres from the entrance at Angle Road. Heathcote 81 was approximately 135 metres from that entrance. Hose lines from Sandy Point 82 and Menai 81 were laid in a westerly direction along Temptation Creek Trail and the fire was fought on both sides of the trail.

At 1558 hours the following radio sequence occurred when the Headquarters tanker made a radio call to Base: -

HQ83: Base HQ 83

* Base HQ 83 over

HQ83: John (i.e. Base) the trucks that have gone in off the end at Angle Road up the hill might pay to check with them, looks like they have stopped on the hill, the fire has got a very good run up towards them over.

* Roger, can you identify any of the vehicles over.

HQ83: Negative John, keep vanishing in and out of the smoke over.

" Roger copy clear with you, any station located on the trail off Angle Road would you acknowledge over.

Illawong 81: Illawong 82 (81) over.

" Illawong 82 (81) have you got your eye on that fire coming up on you over.

Illawong 81: Everything's under control clear.

I am satisfied that things were far from being under control and that the fire fighters were in a highly dangerous position located as they were on the top of a plateau with fire on both sides of Angle Road Trail.

At about 1600 hours conditions became even more threatening than they had been earlier in the day. The effect of the rain at Grays Point was short lived. The temperature was in the vicinity of 40 degrees Celsius and the relative humidity was below 20%. The north-west wind was strengthening and shifting to the west. The fire danger index varied from high to extreme fire danger conditions.

At 1603 hours Mr. Wood sent the following message:-

Wood: We are located up at the Temptation Creek Trail, we are just on the track up from the Oval it appears that we are not going to be able to hold it at this location over.

Mr. Wood had not been informed of the sectioning of the fire ground between Group North and Group West. He went on to ask if Group North was available and Group North replied, "I'm still available if necessary although Len (Group West) is heading for that area now over." Mr. Wood was then given permission to speak by radio to Group West "car-to-car":-

Wood: Are you coming up to my location over.

Gp West: Yes John (Wood) I'm in Angle Road have you access in by Angle over.

Wood: North end of Angle Road up the track there is quite a steep trail over.

Gp West: Yes that's the one off the Oval itself is it over.

Wood: Negative off the northern end of Angle Road over.

Gp West: Yes mate I will be up there shortly. I've just sent some Kurnell up there as well to put a line in on this side of Angle Road over.

Wood: You are going to have trouble holding it up here over.

Gp West: Yes I can see that clear to you.

Group West did not reach Mr. Wood's location. Although he was within view of the tankers on Anana Hill, 200-300 metres away when he received the message, he did not go by the most direct route, that which had been used by the tankers, but instead went via North West Arm Road and Greenhaven Road, a distance of approximately two kilometres. When he reached the southern end of Greenhaven Road where it joins the northern end of the Angle Road Trail he turned back because he suspected that there was fire in the vicinity. He then became involved in directing fire fighting in the Greenhaven Road area. Group West gave various explanations for the route he took, but I am satisfied that he did not take the most direct route because of some confusion as to the extension of Angle Road.

On Anana Hill Mr. Wood, it seemed, was in a dilemma. He knew that the fire could not be held at that location but he wanted advice from his senior officer. He did not indicate that the situation was urgent.

The Sandy Point tanker used all the water it was carrying and left the hill to refill from a hydrant in Angle Road. In the meantime other brigade members became anxious about their position. A reconnaissance to the north was carried out and a large fire to the north-west was observed and Mr. Wood informed. At 1618 hours Group West, who was then located in the vicinity of Greenhaven Road, spoke to Base:-

Group West: Thanks mate while you are there, I am just trying to organise trucks on this ridge with this fire coming over. Would you contact Illawong and tell John Wood I can't get to him yet I'm still involved down here at Angle Road.

A member of Illawong 81 heard that message and replied, "Illawong 81 copy that message over", but that message was not conveyed to Mr. Wood. Suggestions were made during the hearing that if Mr. Wood had received that message he would have evacuated the position sooner. However Mr. Wood's evidence was that though ignorant of the message he had by that time already decided to evacuate Anana Hill. His own tanker Illawong 81 had

proceeded down the hill to Heathcote 81 and commenced to transfer water to it. Suggestions were also made during the hearing that the water transfer indicated that Heathcote 81 was to remain on the hill. Heathcote 81 had run out of water at this stage and members of its crew fighting fire in the bush on the south-eastern side of the Angle Road Trail had lost water pressure. Pressure came back as Illawong 81 transferred water and I am satisfied that it was a routine operation.

Only a small amount of water was transferred as Mr. Wood gave an order to evacuate and the crew of Illawong 81 hurriedly disconnected their hoses and left. Menai made up their hoses and moved down the hill past Heathcote 81. Mr. Wood walked down the hill. He saw the Heathcote Captain, Mr. Keith Campbell, fighting fire in the bush on the western side of the trail, but also observed members of the Heathcote crew preparing to leave. Mr. Wood left the hill and did not speak to Captain Campbell. It was reasonable for Mr. Wood to assume that Heathcote 81 was preparing to leave. However I am satisfied that Captain Campbell was unaware of the precise reason why they were leaving and in particular was unaware that a large and threatening fire was approaching from the north-west.

Heathcote 81 crew members who were south-east of their tanker moved out onto the trail below the tanker. Crew members Ian Chapman, Paul Taylor and Craig Kahler pulled their hoses down the hill, whilst Miss Sharon Campbell, who had also emerged onto the trail from the bush below the tanker, walked back up the hill to her father.

By 1624 hours all fire fighters were off the hill with the exception of the remainder of the crew of Heathcote 81. Of the thirteen persons carried on the tanker when it went onto the hill, the ten remaining were: -

Captain Keith Campbell,
Thomas Anthony Bielecke, a Deputy Captain,
Gregory John Moon, an experienced fire fighter,
Sharon Ann Campbell, Secretary of the Heathcote Bush Fire Brigade and a First Aid Officer,
Robert Bruce Sawyer, an experienced fire fighter and a Deputy Captain on the day,
Paul Christopher Fenn, a new member, and his first fire,
Rodney James Crane, an experienced fire fighter, previously a Deputy Captain,
Craig Goodall, no formal training but had attended some twelve bush fires,
Craig Anthony Blanche, a new member, first fire,
James Leslie Fowler, a Deputy Captain, an experienced fire fighter.

Whilst these events at Anana Hill were taking place, the FCO decided to take another flight in the Police helicopter. Arrangements were made and the FCO went from the Fire Control Centre to the nearby Heathcote Oval, where he expected that Polair would arrive by 1615 hours. However by 1622 hours when it had not arrived he made the following radio message to Base, "Could you just check with the Police that this pick up by the helicopter is to be made at Heathcote Oval not Grays Point. I'm at Heathcote waiting over". Inquiries were made from the Fire Control Centre and at 1626 hours Base replied, "Heathcote Oval 8 minutes Brian over".

Counsel for the Sutherland Shire Council later submitted that this was a most critical delay, in that had the helicopter arrived promptly it was likely that the predicament of Heathcote 81 would have been observed from the air. The helicopter did not in fact arrive at Heathcote Oval until approximately 1634 hours. There is a possibility, but it is no more than a possibility, that if it had arrived earlier the danger that faced Heathcote 81, particularly from the north-west fire would have been observed by the FCO and something done about it. Another possibility which is similarly in the realms of speculation is that the presence of a Grays Point resident, Mrs. Erika Schulze, on Anana Hill at this time may have been observed by the FCO.

As the order to leave circulated amongst them, the remaining crew members of Heathcote 81 returned to their tanker and hoses and equipment were put onto it. Mr. Fowler was the driver, Miss Campbell got into the cabin with him, and it appeared that except for Captain Keith Campbell the rest of the crew got onto the back of the truck. Captain Campbell stood alongside and gave directions to Mr. Fowler.

It was about 1626 hours. Mr. Fowler drove Heathcote 81 out onto the trail and turned left, pointing down the hill. At the same time crew members on the rear of the tanker called out to Captain Campbell about a woman they had seen higher up on the Angle Road Trail. This was a Mrs. Erika Schulze whose property in North West Arm Road extends to near the top of Anana Hill. In an endeavour to ascertain the extent of the fire she had walked up the steep slope on the eastern side of Anana Hill, some of the way on a rough zig-zag trail, into the RNP. (It was all thick bush and there are no fences or signs to show the boundaries of the RNP). At or about the same time as the crew members called out Captain Campbell directed Mr. Fowler to stop. Mr. Fowler saw flames below them and was of the view that the trail below them was then blocked by fire. Captain Campbell gave no reason for his order but Mr. Fowler believed that they stopped then by reason of the trail being blocked by fire. He was unaware that a woman had been seen on the trail until some days later when he was in hospital.

The crew shouted and waved at the woman to come down to the tanker. Mrs. Schulze saw them and waved back to show them that she was all right. She turned around and walked away to return to her home. I accept that Captain Campbell was apprehensive that the woman was in some danger as he immediately sent two crew members to run after the woman and bring her back to the tanker. Mr. Robert Sawyer and Mr. Rodney Crane left the tanker, ran up the hill, across the plateau and caught up with Mrs. Schulze on the northern end of the loop trail.

The tanker had stopped its forward movement at a point where the trail descends steeply to a sharp curve before a short run to the entrance at Angle Road. The steep section of the trail was very rough as the trail was eroded and there were exposed outcrops of rock and stone ledges. During the proceedings there was great contention over the state of this trail. It is clear that the rough condition of the trail would have prevented the tanker from moving with any speed through or near burning bush immediately beside the trail. However even if the surface of the trail had been smooth the trail could only have been negotiated very slowly because of the steep section and the sharp curve.

It became apparent during the hearing that there was general criticism by the Sutherland Shire Council and the volunteer fire fighters of the state of trails within the RNP. The Service district in which the RNP is located did not have suitable equipment to maintain trails such as the Angle Road Trail and had not carried out alternative works.

Whether Heathcote 81 did not come down the trail because of the bush fire and/or the condition of the trail, or because of the presence of the woman became the major issue in the hearing.

The only person who could give direct evidence as to his reasons for stopping Heathcote 81 when he did is Captain Keith Campbell. Unfortunately he is dead.

Senior officers of the brigade gave evidence of their belief that it was the presence of the woman which caused Mr. Campbell to stop the tanker. Counsel for the Sutherland Shire Council submitted that in the finest tradition of the bush fire brigades, the Captain courageously stopped the downward path of Heathcote 81 to safety to enable the woman to be rescued. On the other hand it was submitted on behalf of the relatives (and the separate position of the relatives of the late Captain Campbell must be noted) that the decision to evacuate Anana Hill had been taken too late by Mr. Wood, that the trail was blocked by fire by the time Heathcote 81 moved onto the trail and that the presence of the woman on the hill was only a co-incidence. I accept Mr. Fowler's evidence and I am satisfied that at the time Heathcote

81 stopped on the trail facing downhill fire had blocked the trail or was in such close proximity to it that a vehicle or persons could not have safely negotiated it.

After Mr. Sawyer and Mr. Crane left Heathcote 81, the fire on the western side of the trail burnt close to the tanker. Captain Campbell directed Mr. Fowler to reverse and again he gave no reasons for this order. Mr. Fowler thought it was to move away from the fire. Crew members on the rear of the tanker held the view it was to avoid being cut off from Mr. Sawyer and Mr. Crane. Clearly Heathcote 81 was being threatened by fire. It reversed slowly up the hill. Just before it reached the intersection of the Temptation Creek Trail Captain Keith Campbell made a "red call" on the radio.

Some confusion appeared in evidence of the Sutherland Shire bush fire fighters as to when a red call was to be used and what it meant. Senior officers thought a red call meant a radio call that was to be given priority over other calls and it is apparent that during the day Group West used the call sign on a number of occasions to gain priority over other radio traffic. On the other hand most of the surviving crew members of Heathcote 81 understood a red call to mean that life or property was in danger. There was other evidence that suggested a different use of red signals by the NSWFB.

When a volunteer bush fire brigade is fighting a fire, either alone or in co-operation with other brigades or authorities different understandings of such signals can lead to disaster. The authorities should agree on a uniform system of radio signals and the situations in which they are to be used.

The red call sequence commenced at 1628 hours. To put this into perspective I observe that it was then 25 minutes since Mr. Wood had said over the radio that the fire could not be held at that location. It was 30 minutes since an observer had warned the Fire Control Centre that the fire had a very good run up towards the trucks which had stopped on the hill. It was 59 minutes since Group North had instructed Mr. Wood to chase the edge of the fire from the Temptation Creek Trail. It was some two hours since the FCO had observed the quiet fire conditions near Anana Hill which led to the John Wood exercise. These delays were closely examined during the hearing. The FCO did not expect that it would take so long to implement his plan. Group North's explanation for the delay was that Mr. Wood took longer on his current task than he, Group North, expected.

Captain Campbell called, "Heathcote red" at or about the same time as Group West was speaking to base. The radio calls went on as follows: _

Campbell: Clear the air I've got a red call.

* Stand by Stand by Red call go over.

Campbell: Heathcote 81 we've got a fire in front of us we're sitting pat, check with Illawong brigade and make sure all members got out of this area please

* Copy clear Illawong 81 Illawong 81 from VL2RP over.

Wood: Illawong 81 we have all evacuated from the top of the Temptation Trail over.

* Copy clear with you Heathcote 81 over.

Sharon
Campbell: Copied that thanks clear.

* Everything okay at your location over.

Sharon
Campbell: We will hold at this location at the moment over.

* Right thanks 1629 VL2RP clear.

Sharon
Campbell: Heathcote 81 clear.

This red call, as it was referred to, and later radio conversations concerning Heathcote 81 were not overheard by the FCO who was either about to board or had already taken off in Polair when they were made.

The radio was not used again by Heathcote 81. Approximately 13 minutes would elapse before the fire struck the tanker.

The red call provides further evidence that it was the fire down the trail that prevented Heathcote 81 from leaving the hill. It is significant that no mention was made of the woman on the trail.

Whilst the red call was being made, Mr. Sawyer and Mr. Crane spoke to Mrs. Schulze. She told them that she would return to her home and Mr. Crane accompanied her off the hill. Mr. Sawyer's evidence was that he tried to contact Heathcote 81 with a walkie-talkie radio which he was carrying but was unable to do so. There is no explanation for this failure. When Police officers inspected Heathcote 81 later the walkie-talkies were found to be in working order. He ran back to the tanker having been away for only two or three minutes.

Immediately after Miss Sharon Campbell had said on the radio, "Heathcote 81 clear" a radio call was made by Group West and the following conversation occurred: -

Gp West: Group West to Base (John Hoepper)

* Group West.

Gp West: Yes mate those units which just evacuated Temptation Creek Trail can they come back down North West Arm Road and help me here.

* Right I will check with them stand by.
Illawong 81 VL2RP over.

Wood: Illawong 81 yes we can respond to North West Arm Road over.

* Thanks clear with you Heathcote 81 VL2RP over.

* Heathcote 81 from VL2RP over.

Wood: Base Illawong 81 over.

* Illawong over.

Wood: John is the Heathcote crew alright still back up that trail over.

* Affirmative over.

Wood: Right copy clear we're going down to North West Arm Road over.

* Thanks 1630 VL2RP clear.

W'fall: Waterfall 61 over.

* Waterfall 61 over.

W'fall: Location is North West Arm Road with Len Carter over clear.

* Copy 1631 VL2RP clear.

Wood: Base Illawong 81.

* Illawong Unit calling over..

Wood: Illawong 81 we do have to stay here in Angle Road here for the moment we have got a very big fire front coming towards several properties so we are

delayed going to North West Arm Road over.

* Right thanks for that 1631 VL2RP clear.

* Group West from Base over.

Gp West: Group West.

* Yes Len we had Illawong 81 coming down from that trail but they have got a bit of a problem up there approaching properties so they are going to hang up there over.

Gp West: Roger mate clear.

* VL2RP clear.

Three things become apparent from these radio messages. Mr. Wood and Base (which should have included all relevant personnel at the Fire Control Centre) knew that Heathcote 81 was still on the trail; the inquiry by Mr. Wood was not re-directed to Heathcote 81 but was answered by Base, "Affirmative" (in evidence Mr. John Hoepper said that he answered, "Affirmative" on the basis of the response by Miss Sharon Campbell less than a minute before); and Heathcote 81 did not respond to two calls from Base.

No further inquiry was made concerning the welfare of Heathcote 81. Various explanations have been offered including differences in the understanding of a red call; the role of the Fire Control Centre and the structure of the bush fire brigade organisation. As said above Group Officers consider red calls to be only for priority and the information sought by Captain Campbell had been supplied. Any information on a large disposition board and on a chalk board which might have thrown some light on the knowledge that the Fire Control Centre had of the exercise was lost when the boards were wiped clean on the evening of the fire. That was also a contentious issue. The lack of knowledge at the Fire Control Centre concerning the exercise and detail of the crew of Heathcote 81 was demonstrated later in the day by the confusion of senior officers when efforts were made to ascertain what had occurred on Anana Hill and to identify the crew of Heathcote 81. There is no satisfactory explanation as to why no further inquiry was made by the Fire Control Centre or anyone of Heathcote 81.

There remains no explanation why Heathcote 81 itself did not respond to the calls from Base nor is there any satisfactory explanation as to why there was no further call from Heathcote 81 advising of their predicament or seeking help. The evidence of the survivors is that no attempt was made by anyone on Heathcote 81 to use the radio again after Miss Campbell had told Base, "We

will hold at this location at the moment over". The Bush Fire Council should draw to the attention of all bush fire brigades the need to emphasise in survival lectures the importance of the use of the radio in a life threatening situation.

When Mr. Sawyer returned to Heathcote 81 he was directed by Captain Campbell to light a back burn on the western side of the trail near the intersection, but the back burn flared and did not assist them. Mr. Fowler continued to reverse along the trail until he was directed by the Captain into the northern end of the loop trail. He reversed a short distance and stopped, but kept the engine running at a fast idle. The tanker was then in the vicinity of the place where Mr. Sawyer and Mr. Crane had spoken to Mrs. Schulze. Forty-five metres away and adjacent to the loop trail was an area of possible refuge, a disused quarry, and from there led the zig-zag trail which Mrs. Schulze and Mr. Crane had taken off the hill.

Approximately fourteen minutes had then elapsed since Heathcote 81 had moved onto the trail from their position on the steep hill. The fire was very close but the crew did not leave the tanker. Indeed their training was not to leave their tanker. They depended upon it for their survival. Yet it could only afford them minimal protection.

The Heathcote 81 bush fire brigade tanker was constructed on an RLHC model Bedford truck chassis. It was said to be a 1964 model. It was the usual configuration of a bush fire tanker. The driver's compartment was quite small because of the intrusion of the engine underneath and could hold only a driver and one passenger. It carried a 650 gallon water tank and a Tohatsu V30AS water pump which had been fitted three weeks before, a portable auxiliary pump, and a great deal of fire fighting equipment. Between the cabin and the water tank there was an open compartment where six or eight people could be seated but there was no provision for their protection.

The Bush Fire Council has been concerned for several years with the provision of new bush fire brigade tankers to the bush fire organisations, but has found it difficult to find a replacement for the Bedford chassis. A short wheelbase, multi-drive vehicle of great rigidity and strength is required to enable narrow, steep and rough trails to be negotiated. Crew cabins which would provide fire protection and other safety equipment for the crew add to space and weight problems. Tenders for the construction of new tankers were called for in April, 1982 and after long delays a proto-type with crew cabin has now been produced. (In contrast to the delays experienced by the Bush Fire Council, the Sutherland Shire Council was able after this fire to quickly provide Heathcote Bush Fire Brigade with a new tanker, based on a Leyland Chieftain chassis and with crew protection). The new tankers should be made available to all

brigades as soon as possible.

Heathcote 81 had a petrol engine. In addition to the standard mechanical petrol pump there had been fitted, in accordance with a plan prepared by the N.S.W. Forestry Commission, an electric petrol pump and a by-pass petrol line to prevent vaporisation. The engine was fitted with an incorrect ignition coil. Instead of a standard coil it was fitted with a Bosch GT40R coil. Embossed on it was the instruction, "Use with Resistor". There was no resistor.

After a few minutes of idling, the engine stalled. Mr. Fowler tried to restart it. When it did not respond he pulled a switch which activated the electric petrol pump. Although he heard the ticking sound of the electric pump the engine refused to restart.

During the proceedings mechanical experts advanced various theories as to why the engine stalled and failed to restart. An expert called by the Sutherland Shire Council said amongst other things that the proximity and intensity of the fire caused atmospheric conditions which led to the engine running rich or flooding. An expert called by Police who conducted the investigation was of the view that the incorrect coil had led to the rapid destruction of the ignition points. Various other theories were advanced but I am satisfied that the tremendous heat of the day and from the fire and the condition of the points prevented the engine from restarting. The most likely reason for it stalling in the first place was vaporisation.

Mr. Fowler informed Captain Campbell that the truck had stalled and the Captain told Mr. Fowler and Miss Campbell to leave the cabin. No one sheltered in the cabin. (Afterwards an inspection of the cabin revealed that the interior vinyl and fittings were barely affected by the heat). The fire was then very close, coming at Heathcote 81 from all directions, although the most intense fire was coming from the north-west, the same fire that Mr. Wood had been told about. Efforts were made by the crew to get down a drum of foam chemical but the flames were too close. The Tohatsu V30AS water pump stopped and attempts to restart it were unsuccessful. There is no explanation for its failure. I note that there is evidence that earlier at least one other Tohatsu pump had stopped. At this stage there was some understandable confusion and panic amongst the crew.

Whilst extensive training material is available it appears that fire fighters do not receive any training in simulated emergency situations. It would be worthwhile to incorporate such exercises into their training.

The fire struck at about 1642 hours. Most of the crew sought shelter behind the near side front wheel, which the FCO claims was consistent with their training and a major reason for their survival. Mr. Goodall left the others and ran through a gap in the flames and although seriously burnt he scrambled down the eastern side of the hill to safety. Mr. Bielecke's overalls caught alight and Mr. Sawyer and Mr. Blanche helped him to remove them at great risk to themselves and possibly sustained some of their serious injuries then. Some of the survivors thought that their overalls had been treated with a flame retardant chemical, however the Bush Fire Council had discontinued that procedure years before. Blankets, incorrectly described on Government Stores Department lists as "fire blankets" had been on issue to the Sutherland brigades. Whilst other tankers carried some blankets none were carried on Heathcote 81. Gloves were available also, and were often used by brigade members in mopping-up operations. Only two pairs of gloves were found in the cabin of Heathcote 81 after the fire. However at no stage did any of the Heathcote 81 crew look for either blankets or gloves. Most of the survivors suffered severe burns to the backs of their bodies and to their hands.

After sheltering behind the wheel some crew members then moved to the centre of the trail in front of the tanker. They crouched together on the ground. The word "huddle" appeared in the statements of survivors made to Police and later in their evidence. Though it was a technique in which they had not been trained it saved them, although they sustained very severe burns to those parts of their bodies which were exposed. Neither Captain Campbell or Mr. Moon were part of the huddle. Captain Campbell moved towards the rear of the truck and it appeared Mr. Moon took up a position near the front of the truck. They may have been affected by what then happened to the truck.

The petrol tank on Heathcote 81 had a filler neck soldered to the tank. The solder melted and the filler neck fell off. The effects of extreme heat on the underneath of the tray of the tanker suggested that when the filler neck fell off petrol flame of intense heat flared like a roman candle and was blown underneath the tanker. Three jerricans containing petrol and petrol-oil mixture were located on the near rear side underneath the tray. Two of these ruptured and there is a strong likelihood that it was the flames from the petrol tank which caused them to explode. It is also very likely that the additional heat from the petrol tank and jerricans contributed to the deaths and injuries of the fire fighters. The evidence suggested that a way of reducing such explosions of jerricans is by painting them with a reflective paint and storing them in a locker or otherwise protecting them from radiant heat by shields.

Every effort should be made to convert both engines and water pumps to diesel because of the increased safety it provides with its higher flash point.

The problem of filler necks falling off tankers was identified after the Waterfall deaths. The Sutherland Shire Council had commenced a programme of rivetting a collar around the filler necks of petrol tanks to prevent them falling off if the solder melted, but Heathcote 81 had not been modified. The Bush Fire Council was aware of the problem too, but the Technical Sub-Committee had passed a resolution stating, inter alia, that the melting point of solder used in petrol tank construction is far beyond the temperature at which human life can be sustained. It appears to have adopted the approach that there was no purpose in modifying tankers. However all bush fire brigades should be alerted to the problem and the Bush Fire Council should seriously investigate whether a rivetted collar is a satisfactory solution or some other means needs to be found.

All the Heathcote members may have survived and with lesser injuries than they suffered, if they had some protection over their bodies as they crouched or lay on the ground. The Bush Fire Council should consider the development and manufacture of a lightweight and flame proof blanket for fire fighters and ensure that instructions in its use are incorporated into training.

A contentious issue is the subject of survival tents. Experiments have been conducted in many countries to develop a survival tent or shelter for bush fire fighters. Efforts have been unsuccessful. Recently a local inventor has designed and marketed a survival tent and although various tests have proved inconclusive as to the safety that the tents provide in a bush fire, many of the tents have been donated to the Sutherland brigades. Cost and safety factors prohibit the testing of the tents at bush fires, and although the concept is good and the present state of development is encouraging, the warning by the Bush Fire Council that reliance upon the tents should be adopted with extreme caution must be emphasised.

After the fire, helmets were found on Heathcote 81 where it was stored at the Engadine Police Station. The helmets bore markings consistent with the Australian Standard for helmets adopted by the Bush Fire Council. The Bush Fire Council seemed to adopt an approach before me that the helmets could not have been made of polycarbonate in accordance with the standard as a human being could not survive in temperatures required to melt such helmets. The evidence is that crew members whose helmets melted did survive although it is unclear what type of helmet

each was wearing. The Bush Fire Council should investigate if helmets which comply with the standard it recommends provide sufficient protection for bush fire fighters and should conduct an immediate survey to ascertain the make and Australian Standard number (if any) of all helmets on issue to fire fighters.

When the fire passed both Captain Campbell and Mr. Moon were dead. Captain Campbell lay near the rear of the truck. It is likely that he was attending to the water pump. Mr. Moon was lying directly at the front of the truck very close to the foam nozzle.

The survivors from Heathcote 81 moved off down the trail. Although Mr. Sawyer himself had sustained critical burns he courageously supported Mr. Bielecke across the plateau and down the trail until Mr. Bielecke could go no further.

At 1654 hours they reached the foot of the Angle Road Trail, where they were seen by the many fire fighters who were in Angle Road and rescue operations commenced. Mr. Bielecke was found alive a short way up the trail but he did not recover and died in hospital the next day. Other survivors spent many months in hospital, with Mr. Sawyer being brought from the hospital when he came to the court to give his evidence twelve months after the fire.

It was found that the fire had virtually destroyed the rear section of the Heathcote 81 tanker, although except for scorching of the paintwork the front section comprising the cabin, engine and wheels remained intact.

The progress of the fire on Anana Hill stopped as it reached the quarry and the edge of the escarpment although heavy fire fighting took place at Hammersley Road to protect houses there, and later in the afternoon and in the evening protection was afforded to houses in Seabrook Avenue, Greenhaven Road, North West Arm Road, Hovea Place and Gore Avenue and other areas. A back burn exercise was conducted by bush fire brigade members during the night at Savilles Creek and by 2200 hours the threat to houses had subsided sufficiently to enable most of the NSWFB appliances to be withdrawn.

On Monday, 10th January, the main emphasis was on the western side of the fire ground. The Service sought the assistance of bush fire brigades to protect the RNP Visitors Centre and a back burn was conducted along Florence Parade and the railway line to near the Tramway Museum before the fire was eventually brought under effective control by 1600 hours.

On Tuesday, 11th January, Service personnel and bush fire brigade members worked throughout the day in mopping-up exercises. Three hundred and thirty seven hectares of bush land were burnt, the Heathcote 81 tanker was destroyed but no houses were damaged.

There were many contentious issues raised in the evidence of the FCO and Group Officers. They were subjected to severe cross examination, especially in relation to the radio messages, the briefings at Grays Point and at the Fire Control Centre, the purpose of the exercise near Anana Hill and the Temptation Creek Trail, the delay in implementing the plans of the FCO, the actual exercise on Anana Hill, the delay in the evacuation of Anana Hill and the meaning of the red call. Difficulties experienced in ascertaining the truth appeared to be in part compounded by the continuing contact of the witnesses with the legal advisers and senior officers of the Sutherland Shire Council which made it difficult to establish the precise recollection the witnesses had of various events. Confusion occurred over whether the solicitors of the Sutherland Shire Council were also the solicitors for all or some of the members of the Sutherland Bush Fire Brigades (including the Group Officers) other than the six survivors of the crew of Heathcote 81 who were separately represented at the hearing. A rule had to be implemented to stop the association of witnesses and legal representatives during the cross examination of witnesses. This question of association between the witnesses and the legal representatives of the Sutherland Shire Council was viewed so seriously by Police officers that they placed a witness under surveillance whilst he was giving evidence. Later in the proceedings submissions were made that I should refer the evidence of that witness to the Attorney General. However, I am satisfied that the true facts have been revealed and I do not propose to take any action in accordance with the submissions.

Whilst the role of the group officers was being examined it became apparent that those officers saw themselves as being mainly involved in co-ordination, liaison and strategy, with safety being a matter for individual fire fighters and captains, but I am satisfied that the crew members relied not only upon their captain but upon the group officers and the Fire Control Centre for their safety. None of the officers would concede any responsibility for the deaths of the fire fighters.

The elaborate structure of the Sutherland Council Bush Fire Brigade organisation, together with the modern Fire Control Centre equipped with radio communications, a planning room, a disposition board and other facilities becomes misleading in the context of collective security of the fire fighters. The evidence showed that training in the structure and organisation of brigades within the Shire should be incorporated into safety and survival lectures. If responsibility for safety stops at the

member and/or captain, the members should be told so. Following on the deaths of the fire fighters at Waterfall the Bush Fire Council appointed a Training Co-Ordinator in December, 1981 and the preparation of a very ambitious training guide was commenced although the first copies were not distributed until early in 1984. With the information that has emerged from this hearing the part on survival training could be enlarged to include such matters as the use of a fire tanker to provide maximum protection for the crew and those matters relating to responsibility which I have referred to above.

The role of the New South Wales National Parks and Wildlife Service also came under detailed scrutiny and attack during the proceedings. The Service was established by the National Parks and Wildlife Act, 1967 to manage national parks and nature reserves and conserve wildlife in this State. The National Parks and Wildlife Act, 1974 made the Director of the Service responsible for the care, control and management of all areas dedicated as national parks, nature reserves, historic sites and Aboriginal areas. The Director is the occupier of the Royal National Park.

Fire prevention and fire suppression are important matters in respect of management of national parks. The Annual Report 1981-82 of the Service (part of Exhibit 355) includes the following observations under Planning Co-Ordination, Fire Management.

"The protection of Service-managed areas against fire is a major objective in formulating and implementing management policies in these areas. The Service has a moral and legal commitment to control fires when they occur on Service-managed areas, and is empowered under the Bush Fires Act to take action to control fires on nearby lands where they may spread onto Service areas.

"Service policy provides for the protection of human life and property to have priority in fire management where these are directly threatened. However, fire is also recognised as a natural phenomenon and a continuing physical influence on the Australian environment. The evolutionary adaptation of many native plant and animal species to fire regimes is also recognised.

"The Service's fire management task is a difficult one, as it is faced with the, at times, contradictory objectives of effective use of fire as a management tool and suppression of fires which are threatening to property or the public amenity of an area.

"The Service has attempted to deal with its special fire management task by employing scientifically trained specialists to oversight work in this area and by training its general field force to deal effectively with complex fire management issues. To date, these initiatives have met with considerable success, with the Service's primary fire management goals being adequately met.

"However, Service-wide staff restrictions may adversely affect the continued success of fire management programmes. The Service's fire suppression activities rely heavily on the support of volunteer bushfire fighters, whose training in conventional fire suppression techniques may not always be appropriate for use in nature conservation areas. The assistance provided by volunteers is valued highly by the Service but it cannot replace the need for skilled permanent management staff if natural areas are to be managed in accordance with the State's nature conservation goals."

Historically it is apparent that from 1968 concern has been held by local government bodies about the ability of the Service to control and suppress bush fires. Amendments to the Bush Fires Act in 1970 drastically limited the powers of bush fire brigades because they no longer had direct rights of access to areas proclaimed under the National Parks and Wildlife Act and they threatened to withdraw their services on National Parks and Nature Reserves.

The Service claims to have recognised its responsibilities and has developed a fire policy. The Service Fire Policy of 1971 (current as at 9th January, 1983) states that:

1. The Service regards fire as a natural phenomenon; one of the continuing physical factors of Australian environments.
2. The Service recognises the evolutionary adaptation of many indigenous species of plant and animals to fire regimes.
3. The Service uses and proposes to use fire as a useful management tool.
4. Fire, is and will be used as a fuel reducing agent where this does not conflict with nature conservation management objectives. Aerial seeding for fire is included in this category at this stage although the Service will always consider fire application in terms of required intensity, aesthetic values and the susceptibility of natural communities to such application. Methods used will be approved by the Service. Other fuel reducing methods, including mechanical equipment, cleared or mown fire-breaks, may be approved.

5. Where life and property are directly threatened by fuel conditions all steps will be taken to remove hazards with other management needs regarded as a secondary consideration. Complete prevention from fire occurrence is only practical and warranted in special circumstances when the preservation of species or habitats, or facilities and improvements in or adjacent to the areas is necessary.
6. Construction of fire roads, fire towers, helipads, dams for firefighting, or any other artificial aids may be approved by the Service after consideration of their need and their effect on natural communities, and aesthetic values.
7. In the long term the Service proposes to have its own self-contained firefighting force.
8. All prevention and suppression works will, where possible, be pre-planned and be co-ordinated, where possible, with neighbours and other agencies likely to be affected by Service activities.
9. Subject to the conditions of the Bush Fires Act (as amended) the Service may co-operate with Shires, Bushfire Prevention Associations, the Bush Fire Council, the Forestry Commission and local brigades in fire prevention and suppression work on areas outside, but related to National Parks and Nature Reserves.
10. The Service will undertake fire prevention programmes through public education and through local supervision and enforcement of the Acts and Regulations applying to fires in relation to National Parks and Nature Reserves. These programmes will be undertaken in co-operation with other authorities as necessary.

In accordance with the National Parks and Wildlife Act, 1974, a Plan of Management (Exhibit 253) has been prepared for the RNP. The plan adopts the general Fire Policy of the Service and includes the following statements pertinent to the RNP: -

"The Hawkesbury Sandstone vegetation (together with large areas of heath) which covers a large proportion of the Park is highly inflammable in the summer months and very intensive protection against wildfire is necessary. The tall closed forest which occurs in some of the valleys will also burn under dry conditions.

"There is a very high incidence of fires which are lit deliberately while other fires often originate from more or less accidental causes such as uncontrolled cooking fires and carelessly discarded cigarettes and matches. Fires frequently enter the Park from outside, particularly from west and north-west. These are particularly harmful and chiefly occur when strong westerlies are blowing. Sections of the Park border high density residential areas and fires have been known to enter the Park at these points. An efficient fire fighting organisation is in existence made up of volunteer bush fire brigades within the Sutherland Shire. These Brigades frequently assist in suppressing fires within the Park, as well as those threatening the Park. Service staff employed in Royal National Park function as a unit in suppressing fires and are equipped by the Service."

This brief outline of Service policy is necessary to put into perspective the evidence given by officers of the Service, which occupied much of the hearing, for until they had given their evidence, little attention had been directed to the condition of the RNP and the way in which its Fire Policy was implemented.

The Service has divided the State into four management areas, known as regions. The Central Region is further divided into eight districts. The RNP is within the South Metropolitan District. The Superintendent of this district at the relevant time was Mr. K. A. Ayers who had been with the Service since 1967. In contrast to the limited knowledge that Miss Farrell displayed of the administration and organisation of the district and of the principles of "co-operative" fire fighting, the Superintendent was able and did give evidence at length on those matters. Mr. Ayers furnished to the inquest a fifty page statement with many annexures that mainly concerned fire management and hazard reduction.

Mr. Ayers went on leave early in January, 1983, following discussion with the Regional Director of the Service. Documents before the court show that this leave was approved by the Regional Director on the basis of improvement in the weather and the Acting Superintendent being available from 4th January, 1983.

The Acting Superintendent for the period Mr. Ayers was on leave was the recently appointed Chief Ranger. He was on

transfer from another district and was not due to take up residence in the RNP until 12th January, 1983. He was to attend the RNP on one or two days of each week until then. He did not so attend and was not present during the fire of 9th-10th-11th January. Mr. Ayers said that he did not know the reason for his non-attendance because it was a matter, he said, between the Chief Ranger and the Regional Director. No explanation was given for his non-attendance.

If there was an improvement in the weather prior to Mr. Ayers going on leave it was marginal. The severe drought conditions continued through December into January. By the 9th January high temperatures and lack of any significant rain had lifted the drought index to 621. It is recognised that bush fires which occur in the conditions which produce a drought index in excess of 500 are very intense.

In final submissions for the Service it was said that there was no evidence even tending to suggest that the response or actions of Miss Farrell in relation to the fire were in any way different to that of a more experienced, highly qualified or more senior officer - e.g. Mr. Ayers. The FCO gave evidence that as the Sutherland Bush Fire Brigade organisation supplied the bulk of the manpower and the equipment then they were the senior fire fighting organisation that was present. When asked if the Superintendent had been present would he have expected him to have played a role different from that which was played by Miss Farrell, he replied, "There would have been some slight modifications I suppose, but nothing terribly different". It must be entirely hypothetical if any precise decision would have been made differently but it is a matter of concern that Miss Farrell was left in charge of the RNP.

The Service promotes the concept of "co-operative" fire suppression with established fire authorities. On 10th January, 1980 a Service memorandum announced its policy as support for the principle of a co-operative approach to fire suppression to achieve the most efficient utilisation of fire fighting resources within the community. Mr. Ayers claims that fire fighting resources are sometimes directed to Service districts which do not have the benefit of assistance of other fire fighting authorities. An example of how the Service applied its policy appeared in the answer given by Mr. Ayers to a question concerning the failure of the Service to provide funds to the South Metropolitan District for additional fire tankers. Mr. Ayers answered that there were two basic reasons: one, that the provision of fire tankers or fire tenders is a matter of higher priority in Service districts which do not have the potential support of other organisations such as the South Metropolitan District has from the Sutherland Bush Fire Brigade organisation, the NSWFB, the Army under certain conditions and the Metropolitan Water Sewerage and Drainage Board under certain

conditions and, two, that the District has been provided with small, quick response vehicles with slip on water tanks, operated by small crews, as a better use of resources to respond to fire suppression in the circumstances of the District than the provision of additional tankers. It may well be the fact that the Service does not have and cannot have sufficient resources. For whatever reason it is quite clear that Service resources immediately available to the RNP on 9th January, 1983 were totally inadequate to control and suppress anything other than a very minor fire in the most favourable circumstances.

The provision of adequate staff and funds are matters of Government policy and are outside my jurisdiction.

A further problem with co-operative fire suppression appears from the evidence to be that of control of the different authorities who may respond to a fire. Whilst the Service embraces the concept of "co-operative" fire suppression with established fire authorities it does not support a theory of co-operative control. The Service memorandum previously referred to went on: "with the development of a strong decentralised field organisation within the Service it is essential that the Service's field managers have responsibility for all activities on Service lands under their control". However, no one from the Service's small contingent was present when the fire coming out of the RNP threatened Grays Point, as Miss Farrell had withdrawn them to the RNP Visitors Centre on the other side of the fire after she had asked the FCO, "Who is in charge of the fire?", and he replied, "I guess I am". The FCO said in evidence that he supposed that Miss Farrell was canvassing his thoughts as to who was in overall control of the situation. When asked if that was formal control or was it co-operative control he answered that it was a co-operative control. "Once again," he said, "it comes back to virtually the agreement that we've worked on for so many years". That evidence perhaps explains his reply to Miss Farrell. I am satisfied that when Miss Farrell asked that question she was not sure of her responsibilities as senior officer of the Service present at the RNP. Events had placed her in a position beyond her level of experience and expertise.

It is a matter of public importance that if a system of co-operative fire fighting is to be used, clear lines of authority and control must be defined. Mention has been made of Section 41F of the Bush Fires Act, 1949, but there are obvious problems, to which I direct the attention of the authorities, up to the stage of the Chief Co-Ordinator of Bush Fire Fighting taking charge of fire fighting operations involving several authorities, particularly if the Service insists on control.

Another matter of public importance raised by the evidence is that dissension has arisen between the Sutherland Shire Council and the Service about entry of the Council's brigades onto land occupied by the Service. The evidence indicates that the volunteer fire fighters are concerned about their safety in the RNP because of lack of hazard reduction and the poor condition of trails.

The Bush Fires Act, 1949, as amended, gave to Fire Control Officers, and bush fire brigade group officers, captains and deputy captains very wide powers for the doing of any act, matter or thing which is necessary for the control or suppression of bush fires or the protection of life or property from any existing or imminent bush fire.

Literature published by the Service states that in 1968, one year after the Service was established, severe fires occurred in New South Wales and a review of the Bush Fires Act was then undertaken. The Service (which at that time had no recognition within the Bush Fires Act, although Trust administered areas did) had to decide whether it would seek recognition as a bush fire authority under the Bush Fires Act, or hand responsibility over to existing authorities. Economic arguments tended to favour the latter course of action. However, debate within the Service indicated that the influence of fire on natural systems might not be given full consideration unless the Service itself sought recognition as a fire control authority under the Bush Fires Act.

The Bush Fires Act now provides that the powers given to Fire Control Officers and members of the bush fire brigades shall not be exercised on or in connection with any land or property within a national park unless permission has been granted by the Director of National Parks and Wildlife or some person authorised by him.

The appropriate permission had been given to the Fire Control Officer, Mr. Parry, by the Service prior to 9th January, 1983. Mr. Parry has now left his employment with the Sutherland Shire Council. The position now regarding entry of the present FCO and the brigades is unclear.

The safety of the community residing in areas adjoining the RNP, and the safety of the many visitors to the park, require that any doubt concerning the instant and unfettered entry of the volunteer brigades into the park should be immediately resolved.

Another matter which occupied a great amount of hearing time was that of hazard reduction. This subject was introduced by Counsel for the Service early in the proceedings and Mr. Ayer's statement (Exhibit 125) devotes a substantial portion to it. The subject was pursued at great length.

Hazard reduction by burning of vegetation is also known as controlled burning, prescribed burning and scheduled fires. Subject to ecological and aesthetic objections, prescribed burning is widely acknowledged as a proper measure to be taken for the control and suppression of fires. It can also be regarded as a bush fire prevention measure as fires become self-extinguishing if there is a lack of fine fuel.

Hazard reduction by burning obviously has to be carried out with care as uncontrolled bush fires can develop and life and property become endangered. Also, if the heat generated by the prescribed burn is too intense then foliage will be scorched and the resultant leaf drop can replace the hazardous fuel the prescribed burn was designed to reduce. Complete removal of fuel can cause serious erosion and damage to the soil.

There are other forms of hazard reduction. These involve mechanical means and over large areas it becomes not only a prohibitive task in terms of cost, but physically impossible. However, protection of life and property from bush fires can also be gained by the establishment of firebreaks. These can be cut into the bush so that there are long strips of cleared land. Roads and trails are effective firebreaks. The construction of playing fields, golf courses and other recreation areas provide very effective firebreaks for urban development.

Hazard reduction reduces the rate of spread and the intensity of bush fires and thus makes it easier for fire fighters to control and suppress fires. In a report "Bush Fire and the Australian Environment" by the House of Representatives, 1984, it was stated that a control burn is considered successful if forest litter is reduced to such an extent that fuel loads of eight tonnes per hectare will not be re-established for at least five to ten years. Hazard reduction programmes are designed to prevent this re-accumulation of fuel and usually involve control burning at intervals of less than eight years.

Drought conditions are an important factor in fuel establishment. Trees shed leaves, fine twigs, branches and bark during long periods of dry weather. Loose bark on many trees during drought conditions is the main cause of spot fires as wind can blow burning embers of bark over long distances. With westerly winds Anana Hill is an effective launching place for flying embers into nearby suburbs. After 1600 hours on 9th January, 1983 spot fires caused by flying embers from Anana Hill broke out in North West Arm Road and Dents Creek and threatened the southern part of Gynea and Kirrawee.

Mr. Ayers had designed a comprehensive annual fire management works programme which identified many areas for hazard reduction burning treatment in the RNP. However as at 9th January, 1983, very little of this had been carried out. Except for two small portions on the boundary no hazard reduction had been carried out in the Temptation Creek area. Bush fires had burnt various portions of it in 1968, 1971 and 1976. The Grays Point section had not been burnt since the 1976 bush fire. From measurements taken by the Service in 1981, the derived estimate of fuel in the vicinity of Anana Hill on 9th January, 1983 was 16.25 tonnes per hectare. There can be little doubt that this high fuel load significantly contributed to the rapid spread of the fire and its intensity on Anana Hill.

A great deal of evidence was given by Mr. Ayers in an endeavour to explain why hazard reduction had not been carried out: - Hazard reduction is not usually done in the Bush Fire Danger Period; in 1982 the Bush Fire Danger Period had commenced a month earlier than usual; extended periods of drought restrict prescribed burning because it is too dry; and falls of rain which reduce the effects of dry weather make it too wet. Further evidence revealed that it was ultimately a question of funds. He went on to say that in a situation such as the RNP where there was intensive adjacent residential development, intensive use of the RNP by visitors and intensive management pressures, it was a question of doing a balancing act with the limited resources available. Requests for more people, more equipment and more resources apparently do not receive favourable responses.

At an early stage in the proceedings Counsel for the Service asked questions of fire fighters which indicated that some hazard reduction had been done by brigade members in the RNP. Whilst those questions may have been directed to another issue the possibility of hazard reduction within the RNP being carried out by the members of the Sutherland Bush Fire Brigade organisation or other brigades adjacent to Service land is one which could be considered by the authorities. It would be cost effective for the Service and it would provide ideal training for volunteer brigade members in all aspects of bush fire fighting, including safety and administration. The Service could also use the opportunity to provide the volunteers with some knowledge of conservation measures. The policy decision as to whether an authority adjoining Service lands should have any say or influence in matters such as participating in hazard reduction or maintenance of trails is a matter beyond my jurisdiction.

The role of the firemen of the NSWFB at Grays Point was quite different to that of the volunteer bush fire fighters

who are trained to enter the bushland and by direct fire fighting at the head or on the flanks of a fire or by indirect methods such as back burning, suppress a bush fire as quickly as possible. Although the NSWFB may in theory go anywhere in an emergency the RNP is not within an area which is constituted a fire district by virtue of the Fire Brigades Act, 1909 and the NSWFB is thus not responsible for preventing and extinguishing fires there. In addition, its appliances are generally restricted to paved roads and do not venture into bushland. It fought the fire by laying hoses from hydrants in the streets outside the RNP.

Although the senior District Officer was confident that the NSWFB could provide sufficient protection for the properties the evidence shows that protection of the properties in North West Arm Road below Anana Hill would have been difficult because of the limited access and steep grades and that during the afternoon it was the mobility of the bush fire brigades that enabled rapid suppression of spot fires occurring in residential areas.

I wish to say that the Police investigation into the deaths of the fire fighters was excellent. An experienced team of Police officers led by Detective Inspector G. Shiells and comprising Detective Sergeant D.K. Wilson, Detective Constable D.M. Ruming and other officers interviewed and obtained statements and records of interview from many persons. The Police investigators touched on many of the issues that were to become so contentious during the hearing and many of the statements taken shortly after the bush fire demonstrate feelings of urgency, frustration and excitement on the part of the fire fighters. It was the thoroughness of their investigation that provided the material which formed the basis of this hearing.

The hearing commenced on 14th November, 1983 and concluded on 18th June, 1985. I am aware that some members of the community would like me to make determinations of responsibility and liability. However, the jurisdiction of a Coroner is very limited and it is not my function to make determinations on these matters or to impute moral blame. I am required by the Coroners Act, 1980 to hold an inquest concerning a death and an inquiry concerning a fire and then record my findings, inter alia, as to the manner and cause of death and the circumstances of the fire. Despite the limitations of what I can say an immense amount of material has been gathered which should be collated and reviewed by the appropriate authorities (those represented at this hearing and others). I have referred above to problems and defects exposed by the evidence. The authorities should give close attention to these matters in an endeavour to prevent or minimise the likelihood of such events in the future.

I find that: -

1. On 9th January, 1983 at Anana Hill, Royal National Park, near Grays Point, KEITH CAMPBELL died of the effects of severe burns sustained then and there when he was fighting a bush fire.
2. On 9th January, 1983 at Anana Hill, Royal National Park, near Grays Point, GREGORY JOHN MOON died of the effects of severe burns sustained then and there when he was fighting a bush fire.
3. On 10th January, 1983 at Concord Repatriation General Hospital, THOMAS ANTHONY BIELECKE died as a result of traumatic shock caused by extensive burns sustained on 9th January, 1983 at Anana Hill, Royal National Park, near Grays Point when he was fighting a bush fire.
4. On 9th January, 1983 and subsequent days a bush fire within the Temptation Creek area of the Royal National Park, near Grays Point, destroyed 337 hectares of bushland and a bush fire brigade tanker. The evidence adduced at the inquiry does not enable me to determine the cause of the fire.

(Exhibits may be returned after 28 days).

(B. J. Wilson) -
CORONER.

13th December, 1985.

Appearances:

Assisting the Coroner.

From commencement until 22.10.84
Police Sergeants Rowe, Jacobson,
Evans, Wedderburn and Billett.
From 22.10.84
Mr. M. C. Ramage, of Counsel,
instructed by the State Crown
Solicitor.
(Mr. K. C. Hall of that office).

Relatives of Mr. Keith Campbell, deceased.

Mr. P. A. Johnson, of Counsel, instructed by Messrs. Colin Daley Quinn and Co.

Relatives of Mr. Gregory Moon, deceased.
Mr. Craig Blanche, an injured person.

Mr. K. J. Tapsell, Solicitor, of Messrs. Watkins, Tapsell and Nolan.

Relatives of Mr. Thomas Anthony Bielecke, deceased.

Mr. R. S. Toner, of Counsel, instructed by Mr. T. J. Kelly.

Mr. Robert Sawyer, an injured person.

Mrs. A. Ainslie-Wallace, of Counsel, instructed by Dare Reed now of Sly and Russell.

Miss Sharon Campbell, an injured person.

Mr. S. Lancken, Solicitor, of Messrs. Owen D. Hodge and Son. (later Mr. Johnson, above, appeared for Miss Campbell).

Mr. Craig Goodall, and Mr. Paul Fenn, injured persons.

Mr. J. A. Kavanagh, Solicitor.

Mr. James Leslie Fowler, an injured person.

Mr. D. W. Elliott, of Counsel, instructed by McFadden and Company.

The Bush Fire Council of New South Wales.
The Co-Ordinating Committee of the Bush Fire Council

Mr. J. A. Pritchard, Q. C., Mr. A. Barrie and Mr. P. Mooney, of Counsel, instructed by the State Crown Solicitor. (Mr. C. Brown of that office).

The Board of Fire Commissioners of New South Wales.

Mr. T. F. M. Naughton, of Counsel, instructed by Pigott Stinson.

The Sutherland Shire Council.
Mr. Brian Parry, Fire Control Officer.

Mr. P. R. Grogan, of Counsel, instructed by Messrs. Solari, Macedone, Christie and Willis.

The National Parks and Wildlife Service.
(And as from 21.8.84)
Mr. K. R. Ayers, Superintendent, and Miss J. A. Farrell, Senior Ranger.

Mr. B. J. Camilleri, of Counsel, and from 8/84 also Mr. D. Williams, of Counsel, and from 22.10.84 also Mr. D. Cowan, of Counsel, instructed by the State Crown Solicitor. (Mr. B. Skuodas of that office).